



18th European Weed Research Society Symposium

EWRS 2018

17-21 June 2018
Ljubljana, Slovenia

**New approaches for
smarter weed management**

www.ewrs2018.org

Book of Abstracts

Organiser

Kmetijski inštitut Slovenije (KIS) – Agricultural Institute of Slovenia, Hacquetova ulica 17, 1000 Ljubljana, Slovenija

Programme Committee

Dr. Jukka Salonen, Chairman / EWRS Vice-President; Prof. Dr. Hüsrev Mennan, Scientific Secretary; Prof. Dr. Paul Neve, EWRS President

EWRS Scientific Committee

Dr. Theo Verwijst, Department of Crop Production Ecology, Swedish University of Agricultural Sciences, Sweden; Prof. Dr. Garifalia Economou-Antonaka, Faculty of Crop Production Science, Agricultural University of Athens, Greece; Dr. Kirsten Torresen, Norwegian Institute of Bioeconomy Research (NIBIO), Norway; Dr. Roland Beffa, Bayer Crop Science AG, Integrated Weed Management & Resistance Biology, Germany; Dr. Ivo O. Brants, Monsanto Europe S.A, Belgium; Jan Petersen, University of Applied Science Bingen, Germany; Christian Bohren, Research Station Agroscope Changins-Wädenswil (ACW), Switzerland; Dr. Per Kudsk, Professor & Head of Section, Dept. of Agroecology, University of Aarhus, Denmark; Maurizio Vurro, Istituto di Scienze delle Produzioni Alimentari – CNR, Italy; Dr. Marleen Riemens, Wageningen University and Research Centre, Netherlands; Prof. Dr. Svend Christensen, University of Copenhagen, Faculty of Life Sciences, Denmark; Dr. Hanan Eizenberg, Newe Ya'ar Research Center, Israel; Dr. Euro Pannacci, Dept. of Agricultural, Food and Environmental Sciences – University of Perugia, Italy; Dr. Paula Westerman, Group Crop Health, Faculty of Agricultural and Environmental Science, University of Rostock, Germany

Local Organising Committee

Assoc. Prof. Dr. Andrej Simončič, President, Agricultural Institute of Slovenia; Dr. Robert Leskovšek, Agricultural Institute of Slovenia; Dr. Gregor Urek, Agricultural Institute of Slovenia; Prof. Dr. Stanislav Trdan, Biotechnical Faculty, University of Ljubljana; Prof. Dr. Mario Lešnik, Faculty of Agriculture and Life Sciences, University of Maribor; Ela Žilič, M. Sc., Agricultural Institute of Slovenia; Marjeta Urbančič Zemljič, M. Sc., Agricultural Institute of Slovenia

Editor

Andrej Simončič

Published by

Kmetijski inštitut Slovenije, 2018

The publication is published e-only – <http://www.ewrs.org>

Crop rotation and fertilization effects on weeds in rice based cropping systems in Madagascar

Aude Ripoche^{1,2}, Jean-Augustin Randriamampianina³, Patrice Autray^{1,2}, Pascal Marnotte^{1,4}, Mathias Christina^{1,4}

¹ CIRAD, UPR AIDA, F-34398 Montpellier, France. AIDA, Univ Montpellier, CIRAD, Montpellier, France

² SRR FOFIFA, BP 230, Antsirabe, Madagascar

³ FOFIFA - Département de Recherche Rizicole BP. 1690 Tsimbazaza Antananarivo, Madagascar

⁴ CIRAD UPR AIDA F - 97743 Saint-Denis Cedex 9 La Réunion

In the Mid-West region of Madagascar, yields in upland rice remain low due to both low soil fertility and high weed pressure in fields. Increasing managed biodiversity inside crop rotation may be an option to reduce weed pressure in cropping systems.

The effect of managed biodiversity was studied in a field experiment carried out in Ivory (19°33'18.90«S, 46°24'53.08«E), with a randomized block design with four replications during two years. Three rainfed rice based rotations (Rice // Groundnut = RA, Rice // Sorghum + *Vigna unguiculata* = RSV, Rice//*Mucuna cochinchinensis* + *Crotalaria spectabilis* = RMC) combined with two levels of fertilization (Low Fertilization = manure vs. High Fertilization = manure + fertilizer) were compared to a rainfed rice monoculture. Each crop or crop mixture in the rotation was grown every year on plots measuring 45.9 m². Each year, weed and rice biomass were measured at each weeding date. Rice biomass was also measured at flowering and harvest. Rice yield and its components were measured at harvest. Weed flora was observed the second year to analyse potential change in weed communities according to fertilization and/or crop rotation.

The first year, weed biomass and rice yield were higher in highly fertilized treatments than in lowly ones. In highly fertilized treatments, weeds did not affect yield and weed biomass was positively correlated to rice yield. On contrary, fertilization had no effect on weed biomass the second year. The highest and lowest weed biomass were observed on RA and RMC treatments respectively. Lowest rice yields were observed in RSV and RA treatments, in highly and lowly fertilized treatments respectively. In lowly fertilized treatments, weed biomass reduces significantly rice yield. Finally, rotation had more impact than fertilization on weed flora.

Biodiversity may have positive effect on cropping systems performances but it depends largely on the introduced species.